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ABSTRACT

In an extension of a pilot study (Mezoff, 1980B) the influence of participant cognitive style on various human relations training (HRT) outcomes was explored. Cognitive style dimensions investigated were field-dependence-independence (FD-FI, Witkin 1978) and interpersonal discrimination (Carr 1979). University students (N=39) enrolled in a group dynamics course completed a series of self-report measures administered over the duration of the training and peer-rankings at the end of training. No differences were found between FI and FD persons in terms of grouped-ranked outcomes or self-report measures. Peer-ranked areas of task-orientation, maintenance-orientation,and emotional openness correlated significantly with the measure of interpersonal discrimination. A high degree of inter-correlation was found among task-orientation, maintenance-orientation, satisfaction, and learning. Final participant self-reports showed a strong correlation to various peer-ranked outcomes. An analysis of each of three T-groups found evidence of variation among groups: aggregation of data across treatment groups was found to obscure significant interactions. (NRB)

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PARTICIPANTS' ABILITIES IN PERCEPTUAL AND INTERPERSONAL DISCRIMINATION RELATED TO HUMAN RELATIONS TRAINING OUTCOMES

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Participants' Abilities in Perceptual and Interpersonal Discrimination Related to Human Relations Training Outcomes

Abstract

This study was undertaken to investigate the influence of participant cognitive style on Human Relations Training outcomes (ranked by peer co-participants & self-reported). A review of cognitive style research (Mezoff, 1980C) suggested that cognitive style interacts with participant behavior in a human relations laboratory. Specifically, cognitive style theory predicts that persons with an analytic (Field Independent) cognitive style would tend to assume the task-oriented roles in the laboratory, whereas global (Field Dependent) participants would tend to assume group-maintenance oriented roles in the laboratory. In this study perceptual discrimination (the cognitive style known as field-dependence-independence) was not correlated to any peer-ranked outcomes (concern for task, concern for group maintenance, satisfaction with group experience, learning and understanding as a result of group experience, & most emotionally open). However, some differences in self-reports were evident in an analysis done of each individual T-group. A related cognitive style variable, Interpersonal discrimination, was measured by Carr's (1965, 1979) Interpersonal Discrimination Test. Interpersonal discrimination was significantly correlated with some peer-ranked outcome measures but not with self-report measures. This study found evidence of a high degree of

variability across T-groups in the correlations among the variables investigated. However, in all T-groups task-orientation was highly correlated with maintenance-orientation. This suggests that these two dimensions, when rated by co-participants, may not be as independent as previously believed in the Human Relations Training setting. A major conclusion of this paper is that human relations research should continue to study the differential effects of various training treatments across various subpopulations of participants.

Participants' Abilities in Perceptual and Interpersonal Discrimination Related to Human Relations Training Outcomes

Introduction

In the human relations training (HRT) field it is often difficult to know exactly what impact the training has on laboratory participants. Effects have been noted immediately after a training experience, and yet these sometimes fade out or become extinguished over time (Smith, 1975). Other effects may not be immediately apparant, yet can reach statistically significant levels after a period of weeks or months (Harrison, 1966). For a detailed treatment of the broad variety of possible outcomes from training see Smith (1975) or Mezoff (1980d). Mezoff's review also includes a discussion of many of the problems inherent in attempting to measure training effects (1).

In addition to the difficulties inherent in measuring outcomes from training, the evaluation problem is compounded

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(1) These difficulties include (1) measurement suboptimization (imbalanced focus on limited set of criterion measures), (2) teaching suboptimization (imbalance in the goals that are taught), (3) measurement-orientation (neglecting more abstract goals because it is more convenient to focus on concrete ones; or vice versa), (4) the variety of goals in training, (5) the variations in instruments to measure outcomes, (6) test-sensitization effects (the influence of a pre-test on post-training evaluations), (7) test-treatment interactions, (8) problems in data collection (fade-out and delayed reaction effects), (9) bias of raters knowing who the experimental and control subjects are (lack of blind rating), (10) nonequivalence of of experimental and control populations, (11) difficulties in obtaining intersource consensus among raters, (12) value-biases in ratings, etc.

by the tendency for most HRT research to employ a "main effects" model. A main effects model compares the average outcomes (or gains) from a treatment group to the avverage outcomes from a control group.

There may be large differences among participants in their reactions to, and learning from, the HR laboratory experience. However, the main effects model may fail to discern these differential effects because the main effects model only considers the average gain across all the participants.

A matching model (or aptitude-treatment-interaction) approach (see Mezoff, 1980a) appears to provide some insight into the phenomenon of the differential effects of training. By investigating the effects of training across various sub-populations of HRT participants one may be able to discern significant interactions in training outcomes between certain types of participants and certain training designs. These interactions suggest a differential responsiveness to training. These interactions might go undetected if only the average outcomes tapped by the main effects model were studied.

Some authors suggest that certain people are more amenable to human relations training (HRT) than others. "Typically, wide differences are seen in the extent to which individual members 'take to' the sensitivity-training experience" (Harrison, 1966, p.518). Perhaps participants' personality traits account for the differences in how people

respond to human relations training.

A number of studies have attempted to identify those personality variables that differentiate between high and low learners in laboratory training settings (Harrison & Lubin, 1965; Joure et al., 1971; Anderson & Slocum, Jr., 1973; Poland & Jones, 1973; Mitchell, 1975). In attempting to discern those factors that facilitate laboratory learning, all of the previous studies address the element of personality style or personal orientation. Three of the above studies (Harrison & Lubin, 1965; Joure et al.,1971; Anderson & Slocum, 1973) explicitly address the variable of participant cognitive style/cognitive structure, although only Harrison & Lubin (1965) cite the underlying cognitive models of personality upon which the cognitive style literature is built (Kelly, 1955; Harvey, Hunt, & Schroeder, 1961; Witkin, Dyk, Paterson, Goodenough, & Karp, 1962). This paper will review the cognitive style literature in the following section.

Research in education and psychotherapy suggests that cognitive style variables can account, in part, for the differential effectiveness of various educational and therapeutic programs (Witkin, Moore, Goodenough, & Cox, 1977; Witkin, Lewis, & Weil, 1968; Messick & Associates, 1976), but there is a scarcity of research on cognitive styles in human relations training settings. In part, this is due to the fact that research on congitive styles and interpersonal behavior is in its infancy (Witkin &

Goodenough, 1977a). Further, most of the research in education and psychotherapy has taken place in experimental settings, a setting difficult to establish for HRT.

This research is the extension of a pilot study (Mezoff, 1980B) exploring the influence of cognitive style on various HRT outcomes. The pilot study (n=13) found that subjects (employees of a Canadian public utility company) with a field-independent cognitive style were rated by the other group members; (1) to be more task oriented, (2) to be more maintenance oriented, (3) to be more satisfied with the laboratory experience, and (4) to have learned the most from the laboratory experience when compared to field dependent subjects (all at $p < .01$).

If cognitive styles were found to be correlated with training outcomes, there would be several important implications for HR trainers. The first and most useful result is that trainers could use knowledge about participant cognitive style and the interaction of these styles with certain design elements to modify the design or focus of the training. It might be found that persons with a particular cognitive style function best in, or have an aversion to, a certain type of training format. If that were so, the training format (e.g., high or low structure; group or individual focus, etc.) could be altered in response to the cognitive style needs of participants.

Second, with a large scale training program it would be possible to group participants by cognitive style and

provide each group with a more individualized training treatment. Mezoff reviews a number of matching model strategies that could be applied to HRT (1980a). He concludes that strategies which capitalize on client strengths are most suited to maximizing participant outcomes. Cognitive style is probably the most pervasive example of a client strength. If persons of different cognitive styles were differentially responsive to a training treatment, then strategies could be developed to modify the training treatments so as to accomodate (or match) the various cognitive style requirements of the HRT participants.

The third implication is perhaps the least useful: cognitive style could be used as one factor in the process of screening potential laboratory attendees. But, to reject candidates for training only on the basis of having an inappropriate cognitive style would be a rather crude application of findings. Since psychometric screening is virtually unknown in HRT, this approach would not be practical and is not advocated.

This study was undertaken to explore the relationship between cognitive styles and training outcomes. If persons of different cognitive styles were differentially responsive to a training treatment, then strategies could be developed to modify the training so as to accomodate (or match) the cognitive style requirements of the participants.

Cognitive Style

A cognitive style is a characteristic mode of mental functioning. "Each individual has preferred ways of organizing all that he[/she] sees and remembers and thinks about. Consistent individual differences in these ways of organizing and processing information and experience have come to be called cognitive styles....They are conceptualized as stable attitudes, preferences, or habitual strategies determining a person's typical modes of perceiving, remembering, thinking, and problem solving" (Messick & Associates, 1976).

These characteristic modes are called cognitive styles because they are generally consistent and they cut across a wide variety of tasks and situations (Witkin, Goodenough, & Oltman, 1977). Research in cognitive styles "developed in part because traditional research on ability failed to expose the processes generating individual differences" (Cronbach & Snow, 1977, p. 375).

> People see and make sense of the world in different ways. They give their attention to different aspects of the environment; they approach problems with different methods for solution; they construct relationships in distinctive patterns; they process information in different but

> personally consistent ways . . . . Cognitive style . . . has a broad influence on many aspects of personality and behavior . . .
>
> Cross, 1976, p. 115-116

There are many different dimensions of cognitive styles (Messick, 1970, pp. 188-189). The most extensively researched measure of cognitive functioning is the Field-Dependence-Independence (FDI) continuum.

The original work on FD and FI styles began by investigating how persons located an upright in space. Subjects had to locate a true vertical and ignore misleading visual or bodily cues in the experimental setting. If a subject could ascertain the true vertical despite the misleading visual cues, they were called "field-independent". The field-independent (FI) person based the position of the upright on their bodily cues, using internal physical sensation referents as opposed to external visual referents. The "field-dependent" (FD) person tended to be influenced by the prevailing visual field and aligned the upright according to the tilted visual stimuli.

Other experiments were conducted with rotating rooms, where centrifugal force caused the bodily cues to distract the FI subjects from what was actually a true vertical visual field. The FD subjects were not misled by the centrifugal force and only used the visual field.

Most recently the tests of embedded figures (EFTs) were developed to measure the FI and FD cognitive styles. FI subjects are able to break down a complex stimuli and impose their own structure or organization upon it. FIs use internal referents and FDs tend to use external ones.

The individual who perceives in a Field-Independent (FI) fashion is able to dis-embed hidden figures from a complex surrounding field and sees items as discrete from their background. Persons with an FI style are able to impose their own sense of structure on an unstructured perceptual field.

Field-Dependent (FD) people tend to see a visual field as a whole, and thus have difficulty identifying the sub-components or imposing their own structure to organize the field. Whereas FI persons tend to be analytic and task-oriented, FD persons tend to have greater social skills and are oriented toward the interpersonal domain.

These perceptual tendencies extend across both perceptual and intellectual functioning. FD and FI styles have been found to extend to auditory and tactile modalities as well as visual perception.

Field-dependence-independence (FDI) is a measure of perceptual discrimination. Research has shown that FD is "related to both a lack of discrimination across people in evaluating others and a halo effect in evaluating others' attributes" (Gruenfeld and Arbuthnot, 1968, p.993). It appears that there is broad dimension of personality

functioning called "psychological differentiation" that includes both perceptual and interpersonal discrimination, and these two components have been found to be moderately correlated (r = .36; Rhodes, Carr, and Jurji, 1968).

Research on FDI is extensive. For greater detail about the historical development of Field-dependence-independence (FDI) research see Witkin, Moore, Goodenough and Cox (1977). There exists an indexed four volume bibliography of over 3,000 studies dealing with FDI cognitive styles. No attempt is made here to recount those exhaustive findings. See Mezoff (1980c) for an extensive review of cognitive style research germane to human relations settings.

Method

Design

This field-based study was conducted at the University of Massachusetts. The purpose was to explore the relationship between participant cognitive style and outcomes from training. Cognitive style dimensions investigated were field-dependence-independence (Witkin, 1978) and interpersonal discrimination (Carr, 1979). The major training outcomes were measured by a series of self-report measures (administered over the duration of the training) and peer-rankings (at the end of the training).

The training was a formal university course in group dynamics offered to undergraduates (most of whom were majoring in the social or the behavioral sciences). Ss (n = 39) were college-age and consisted of 7 males and 32

females. The training was conducted over a 9 week peroid and ran for 44 hours. The design included an evening pre-meeting, a one day, twelve hour, workshop and eight 4 hour weekly sessions. This was a first exposure to HRT for most of the participants. About 66% of the laboratory was devoted to time in a T-group. The rest of the time was spent in theory presentations and structured experiential activities to deal with the theories. Participants were randomly assigned to three groups that remained intact over the course of the training. Each of the groups was facilitated by two advanced doctoral students. Facilitator pairs were balanced for sex (one male, one female). Two pairings were all-Caucasian, the third pairing was all-Black. The second author was responsible for supervision of the graduate students and overall coordination of the course.

Measures of Independent Variables

(1) GEFT - The group Embedded Figures Test (Witkin, Oltman, Raskin, & Karp, 1971) was administered on the second meeting of the course. This instrument provided a measure of perceptual discrimination or FI-FD. A high score on this instrument represents FI and a low score represents FD. The GEFT has a Spearman-Brown reliability coefficient of .82.

(2) IDT-M - A modified form of Carr's (1965, 1979) Interpersonal Discrimination Test (IDT) was administered at the last meeting of the program. This instrument provided a

measure of interpersonal discrimination. Participants were asked to discriminate among the members of their T-group along a number of predetermined construct dimensions (e.g., concern for task, most emotionally open, etc.). The total number of categories that participants used in making distinctions among members of their T-group yielded a score of interpersonal discrimination (IDT-M Discrimination). A high score represented a greater degree of interpersonal discrimination. The test-retest reliability for Carr's (1979) IDT is reported as .83 after one day and .63 after two months.

Dependent Variables

(1) Self-report instrument - This questionnaire consisted of 14 items. Eleven items described feelings or behaviors and participants rated themselves by circling one of four choices (agree, agree somewhat, disagree somewhat, disagree) reflecting how they felt about their feelings/behavior in their T-group. The eleven items covered the following areas:

1. feel liked by others,
2. enjoy being with others,
3. enjoy physical closeness with others,
4. willingness to express anger,
5. attuned to others' unexpressed needs,
6. considers others' views and feelings,
7. looking for feedback,
8. active and involved participant,

9. primarily a spectator and observer,

10. performs group maintenance functions, and

11. performs task functions in group.

The last three items on the instrument were scaled on a 7-point Likert scale. Participants rated their satisfaction with the group experience (very dissatisfied - very satisfied), their learning and understanding as a result of the group experience (minimal learning - moderate learnings - learned a great deal), and the emotional impact of the group experience (no impact - some impact - large impact).

It was hypothesized that FDs would: feel liked by others, enjoy being with others, enjoy physical closeness with others, be more attuned to others' unexpressed needs, be more considerate of others' views and feelings, look for feedback, act primarily as spectators and observers, and perform the group maintenance functions. We hypothesized that the FIs would: be more willing to express anger, be active and involved participants, and perform the task functions in the group.

The self-report was administered six times: after the first evening meeting, at the end of the day long workshop, the next evening meeting, and every alternate evening afterwards.

(2) IDT-M - The modified interpersonal discrimination test (also serving as an independent variable) provided criterion measures for each participant along a number of dimensions. Each group member ranked the other members on

the following dimensions:

1. concern for task,
2. concern for group maintenance,
3. satisfaction with group experience,
4. learning and understanding as a result of group experience,
5. most emotionally open.

As a result of these rankings each person was ranked by all group members (including him/herself). The means of the rankings of each group member resulted in that group member's IDT-M dimensions score. This was individually computed for each of the five above dimensions.

In addition to the FI-task orientation and FD-maintenance orientation we predicted above (under the self reports), we hypothesized that FDs would be ranked as more emotionally open.

RESULTS

Findings From Analysis of Aggregated Sample

Correlations Among Peer-Ranked Outcome Measures & Measures Of Perceptual And Interpersonal Discrimination. Correlations among the independent variables and the reer-ranked dependent variables are reported in Table 1. The correlations between the GEFT and the IDT-M Discrimination was r=.32 (p=.04). This was supportive of Carr's data indicating a correlation between the GEFT and the IDT of r=.36. The GEFT distribution was bimodal.

The IDT-M Discrimination was significantly correlated ($p < .05$ or less) with three out of the five reer-ranked outcome measures. The GEFT did not correlate with any of the dependent variables. Whereas interpersonal discrimination (measured by the IDT) was correlated to reer-ranked outcomes, pe ceptual discrimination was not.

Insert Table 1 about Here

Self-Reports Related To Measures of Perceptual & Interpersonal Discrimination. Using a median split on the IDT-M Discrimination and the GEFT, two-tailed T-tests were performed on all of the self-report data. Out of 84 T-tests (6 administrations times 14 items) none reached the $p < .025$ level of significance using a GEFT split. Using an IDT-M Discrimination split three T-tests reached $p < .025$ level. However, a significant finding at one administration was never corroborated by a significant finding at any other time. Chance effects may have accounted for any of the few trends observed in the self-report data.

Self-Reports Correlated With Peer-Ranked Outcome Measures.

The self-reports were taken from the last available administration and compared them to peer-rankings (also taken at the end of the training). For T-groups A and C

self-reports were taken at exactly the same time as the peer-ranked outcome measures. In T-group B the self-reports were not available from the last session, therefore the self-reports from the previous session were used (2).

Table 2 reports the correlations between the five peer-ranked variables (task-oriented, maintenance-oriented, most satisfied, learned the most, and most emotionally open) with the fourteen items of the self report instrument.

One limitation should be noted in these correlations between others' rankings and final self-reports. THese correlations are constrained by a smaller sample size than the total. Only 26 out of the 39 participants filled out final self-reports that were usable for our analysis.

Insert Table 2 About Here

Some of the self-report items correlated strongly with the peer-ranked outcome measures. For example, group members who rated themselves as "active and involved participants" were rated favorably on all of the peer-ranked outcomes ($p < .01$ or better). Similar strong relationships were found for the self-report items: "enjoy being with others", "enjoy

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(2) In T-groups A and C there were not significant differences between the last and the next-to-last administrations. This, therefore, provided the rationale for considering T-group B's data from the next-to-last administration as equivalent to the data from the last administrations of T-groups A and C.

physical closeness", and "willingness to express anger". Other self-report items showed significant correlations with only some of the peer-rankings. Still other self-report items (such as, "attuned to others' unexpressed needs" and "considers others' views and feelings") were not significantly correlated to any of the peer-rankings.

Table 2 indicates that the self-reports and rankings of others were highly correlated on those dimensions that were common to both scales. Self-rated task-orientation was correlated $r = .64$ ($p < .001$) with task-orientation ranked by others. The matched-pair correlations for maintenance-orientation, satisfaction, and learning were: $r = .51$ ($p < .01$), $r = .58$ ($p < .001$), and $r = .52$ ($p < .01$) respectively. The strength of the correlations for the matched pairs provides a high degree of external validity for both the self-report and the peer-ranking instruments. Furthermore, the correlations on the matched pairs lends further support for the validity of the correlations on non-matched pairs.

Findings From Analysis Of Individual T-Groups

Relationships between the variables discussed above were analyzed on an individual T-group basis. This further analysis of the data was suggested by a fortuitous set of circumstances. We administered the GEFT to the group facilitators before the course began. These were not scored until late in the training, long after the leaders had paired off into co-facilitator teams. The facilitator pairing process serendipitously (3) resulted in cognitive style matches among the three pairs of facilitators. One pair was extremely field independent (T-Group C: GEFT scores of 16 and 18); another was extremely field dependent (T-Group A: GEFT scores of 4 and 4); and the last pair (T-Group B: GEFT scores of 7 and 12) both facilitators had moderate GEFT scores.

Therefore, there was some basis for speculating that each pair of facilitators might provide different "types" of leadership in their T-groups. We began to look at each group separately and to compare across the groups to see if we could find evidence of differential effects.

Self-Reports Correlated With Peer-Ranked Outcome Measures (By T-Group). We performed a correlation analysis between self-reports and peer-rankings for those dimensions

(3) This pairing process occured spontaneously and benefited this study by allowing further analysis of the data. However, the result of cognitively matched co-facilitator teams may not have been purely a result of chance. It should be noted that the cognitive style literature provides extensive documentation of greater interpersonal attraction in cognitively matched dyads.

common to both scales. We wanted to see if the high degree of intercorrelation between self-reports and peer-rankings would be as evident in each individual T-group as existed in the aggregated sample (discussed above). Table 3 indicates that the answer is negative: The intercorrelations between self-reports and peer-rankings were different across the three T-groups. The correlations are strongest for T-group C (the group led by FI facilitators), followed by T-group B (the group led by moderate FDI leaders). In T-group A (the group led by FD facilitators) there was not a significant correlation between individuals' ratings of themselves and the peer-rankings on any of the five dimensions.

Insert Table 3 About Here

Correlations Among Peer-Ranked Outcome Measures & Measures of Perceptual And Interpersonal Discrimination (By T-Group). Pearson correlations among peer-ranked outcome measures and measures of discrimination (perceptual & interpersonal) were computed (similar to Table 1) for each of the three groups. Table 4 provides the correlations among IDT-M Discrimination and the GEFT and the five peer-rated outcome measures for each T-group. The GEFT bore no relation to the outcome measures in the aggregated sample (see Table 1) nor when we investigated the correlations by T-groups individually (see Table 4).

Insert Table 4 About Here

Table 4 reveals three other interesting results. Task, Maintenance, Satisfaction, and Learning all intercorrelated strongly ($.77<p<.93$) for each of the T-Groups. This effect was most pronounced for the Task-Maintenance and Satisfaction-Learning pairings. T-group A (FD facilitators) demonstrated strongly positive corelations between the IDT-M Discrimination and the peer-ranked outcome measures, the relationships were less strong in T-Group C (FI facilitators), and no correlations were evident in T-group B (moderate FDI facilitators).

The most emotionally open participants were also ranked very high on the other peer-ranked outcome measures, but only for T-group A and C. In T-group B emotional openness was not correlated to any of the other peer-ranked outcome measures. This result is puzzling, to say the least. Perhaps the variability among T-groups is large and mostly attributable to factors other than cognitive style.

These results did not lend support to a trait-by-treatment interaction. The effect of facilitator FDI on group ranked outcomes cannot be determined in the present study because our treatments may have been confounded by trainers race. The two FD facilitators for T-group A were both Black. The other facilitators were caucasian.

Whether race, cognitive style, or some unknown factor caused the variation among the T-groups one thing is clear: The correlations from Table 4 relating the IDT-M Discrimination to group ranked outcomes were markedly different for T-group B compared to T-groups A and C.

Analysis Of Variance Of Peer-Ranked Outcome Measures Across The Three T-Groups. We analyzed the means and variances of the peer-ranked outcome measures across the three T-groups. Although the comparison of means yielded no significant differences, an analysis of the variance provided interesting results. Table 5 reports this data. T-group A had greater variance on the outcome measures than the other two groups on all five measures (four out of the five measures were at $p < .12$). Whatever the cause, the participants in T-group A were much more divergent in their opinions (in terms of ranking others) than were participants in the other two T-groups.

Insert Table 5 About Here

Self-Reports Related To Measures of Perceptual And Interpersonal Discrimination (By T-Group). In the case of the aggregated data (see above) we found very few differences in the self report based on either of the discrimination measures (GEFT or IDT-M Discrimination). In analyzing the aggregated data using a GEFT split none of the

84 T-tests (two-tailed) reached a $p < .025$ level of significance. Quite different results were revealed when the same T-tests were performed on an individual T-group basis.

In T-group A (FD facilitators) six of the 84 T-tests reached the $p < .025$ level. On all six tests FD participants rated themselves higher than FI participants. Five of the six items on which the FDs rated themselves significantly higher were traits that FD persons characteristically display, thus supporting our hypotheses. FDs reported themselves as: enjoying being with others (administration # 1, $p = .008$ and administration # 2, $p = .015$), attuned to others unexpressed needs (administration # 1, $p = .02$), considering others' views and feelings (administration # 1, $p = .01$), group maintenance-oriented (administration # 3, $p = .02$), and willing to express anger in the T-group (administration # 3, $p = .005$). All of these traits, except the last,, were what we hypothesized for FD participants. In an unexpected trend FDs also reported themselves as task-oriented (administration # 3, $p = .046$). It is interesting to note that these effects of higher FD self-reports occured early in the laboratory experience. During the last three administrations (which took place biweekly at the end of the follow-up groups) FDs continued to rate themselves higher on the above items, however these later self-reports did not reach statistical significance. This might reflect some different or changing self-perceptions on the part of FI participants as a result of the experience.

In T-group B (moderate FDI facilitators) six of the 84 T-tests reached the $p < .025$ level of significance. FIs rated themselves as: active and involve participants (administartion # 2, $p = .003$), group maintenance-oriented (administration # 1, $p = .01$ and administration # 2, $p = .025$), task-oriented (administartion # 2, $p = .003$), and most satisfied (administration # 4, $p = .024$). FDs rated themselves as being primarily spectators and observers (administration # 2, $p = .003$). Some of our hypotheses were confirmed here: 1) FIs reported themselves as active and involved participants, 2) FIs reported themselves as task-oriented, and 3) FDs reported that they were spectators and observers. Contradicting our hypotheses was the finding that on two administrations FIs reported themselves as being group maintenance-oriented.

In T-group C (FI facilitators) only one T-test (out of 84) reached the $p < .025$ level. On administration # 5 FDs reported themselves as considering others' views and feelings ($p = .02$). This finding was supportive of our hypothesis. Trends were evident on the last administration indicating that FIs rated themselves higher on: feel liked by others, enjoy being with others, enjoy physical closeness, and willingness to express anger (p values from .05 to .20).

Descriptive Statistics. Statistics for peer-ranked outcome measures and the two tests of discrimination are reported in Table 6.

Insert Table 6 About Here

Summary of Results and Discussion

The findings of this study were not supportive of an earlier pilot study by Mezoff (1980b) which indicated strong correlations between a field-independent cognitive style and peer-ranked outcome measures (viz., task-orientation, group-maintenance-orientation, highest satisfaction, highest learners). The present study found no differences between FI and FD persons in terms of the grouped ranked outcomes or the self-report measures when the aggregated sample was considered.

The present study found that Task-orientation, Maintenance-orientation, and Emotional Openness (all peer-ranked) were correlated significantly with the measure of interpersonal discrimination. Furthermore, an analysis of each T-group found evidence of stronger correlations between these variables in two out of the three groups. One group (B), in contrast to the two others (A and C), evidenced no relationship between the score of interpersonal discrimination and peer-ranked outcome measures.

It is not possible to explain these differences among the three T-groups. The effects of trainer style or the different dynamics occuring in the group may have in some

way contributed to these differences. The results do tell us that the variation among T-groups can be great. Further support for differential effects of different T-groups is found in the analysis of variances in Table 4. T-group A (when compared to T-groups B and C) showed less agreement or consensus in terms of ranking the qualities of its group members on the IDT-M dimensions.

Whereas T-group B differed from the others in showing no correlations between interpersonal discrimination and peer-ranked outcomes, T-group A demonstrated a significantly larger variability in their averaged rankings. Although the participants were randomly assigned to groups and the groups were equivalent in terms of field-dependence-independence (FDI), very different ranking patterns occured. The differences in facilitator FDI, race, or other unknown factors may have contributed to the variability in ranking patterns.

Supportive of Mezoffs pilot study (1980b) were the findings of a high degree of inter-correlation among: Task-orientation, Maintenance-orientation, Satisfaction, and Learning. The Task and Maintenance dimensions correlated at $r = .84$ ($p < .001$). This suggests that Task and Maintenance orientation (rated by peer participants) in the human relations setting may not be as independent as earlier research has led us to believe. Participants rated as most satisfied were also rated as having learned the most ($r = .91$, $p < .001$).

Final participant self-reports showed a strong correlation to various peer-ranked outcomes. Those persons who reported themselves as: enjoying physical closeness, willing to express anger, and being active and involved participants were rated high on all the peer-ranked outcomes (see Table 2). This supports the recent research of Lieberman, Yalom, and Miles (1973) as well as the findings of earlier T-group investigations: Active and involved group members are much more likely to be seen by others as achieving positive outcomes. Interestingly, those persons reporting that they were attuned to others' unexpressed needs and considered others' views and feelings (both FD traits) were no more likely to achieve positive gains than those persons ranking themselves low on these traits. Apparantly self-reports of "social-sensitivity" are not correlated to others' perceptions of positive gains from a T-group experience.

Our rankings by others were corroborated by the self-reports taken at the end of the training. In two of the three T-groups (B and C) the rankings of others were significantly positively correlated ($p < .05$ or less) to participants' self-reports. In the third T-group (A) the rankings were positively correlated, however none reached significance (see Table 3).

Aggregated self-reports did not differ between the high and low discriminating groups (either on the GEFT or on the IDT-M Discrimination). However, when self-reports were

analyzed on an individual T-group basis some differences emerged. The group facilitated by the FD facilitators (T-group A) tended to have FD participants report themselves higher on a number of dimensions. In particular, FDs tended to report themselves as both task- and maintenance-oriented. In the group with moderate FDI facilitators (T-group B) FI participants tended to rank themselvees higher on a number of dimensions. In fact, a finding contradictory to the the results from T-group A was revealed: FIs in T-group B rated themselves higher on both task and maintenance orientation. Very few differences were evident in the T-group (C) with FI facilitators.

The self-reports achieved significance ($p < .025$) on only 13 out of 252 T-tests when comparing high and low FI groups. The overall lack of definitive findings can be in part accounted for, perhaps, by understanding the influence that cognitive style has on a persons view of their world. It seems likely that FD and FI persons would have a different conceptualization (or different reference frame) for what constitutes, for example, "task oriented behavior." Each person judges themselves by his/her own private standard on a self-rating instrument.

There were considerable differences between this population and population of Mezoff's (1980b) pilot study. In addition to differences of culture (Massachusetts v. New Brunswick), educational background (college population v. grade 10 average education), age (college-aged v. mean age

of 36), and life-style (student v. in-career), one additional difference is noteworthy. This study consisted primarily of females while Mezoff's (1980b) study consisted primarily of males. The GEFT instrument (employed in both studies) is a better predictor of FI for men than for women. This may have accounted, in part, for this study's lack of strong findings supporting the relationship between FI and high peer-rankings on training outcomes.

Conclusion

The analysis of the self-reports by T-group serves to highlight a point we have made earlier (with regard to peer-rankings): By aggregating data across treatment groups we can obscure significant interactions that take place. When the data is aggregated across FI and FD participants we can lose information about how each subpopulation is affected in a particular T-group. Furthermore, by aggregating data across (presumably similar) T-group treatments we can lose information about the interactions between the treatments and the various subpopulations. For example, FDs tended to rate themselves as task and maintenance-oriented in the group led by FD facilators, whereas FIs tended to rate themselves as task and maintenance-oriented in the group led by moderate FDI facilitators. In the aggregated data these trends cancelled each other out, and without looking for differential effects these findings would have gone unnoticed. Further research is needed to clarify the impact of facilitator cognitive

style on outcome measures. The results of this study suggest some interaction which at this point is unclear.

Future Research

One major outcome of this project is to call for HR research that employs a design which takes into account the differential effects of training on various participant subpopulations. Large scale aptitude-treatment-interaction research projects (with multiple treatments and large sample sizes) are unlikely in HRT. However, when providing a single training treatment, it seems crucial to understand whether the training is effecting different persons in different ways. Researching differential effects, even within a single treatment training program, is important for two reasons. If differences are found: 1) the training may then be be able to be better tailored to participant needs, and 2) unproductive matches of certain participants with certain types of training can be avoided.

One of the most promising variables to explore the differences in responsiveness to training is participant cognitive style. Future investigations of the influence of particpant cognitive styles on HRT outcomes should take the following factors into consideration:

1. The cognitive style dimension that is investigated should be one that is likely to interact with the type of treatment that HRT provides. In addition to Field-Dependence-Independence other researchers might

consider investigating cognitive complexity versus simplicity, reflectiveness versus impulsivity, and tolerance for unrealistic experiences (Messick, 1970). The rationale for choosing these variables is that they seem intuitively well-matched to interact with the dynamics at work in HRT settings.

2. Research related to Field-Dependence-Independence should take into account mobility and rigidity as an intersecting dimension (Witkin, 1978). This dimension will probably affect training outcomes, too. Mobile individuals are those persons that can shift or adapt their perceptual style contingent upon the situational demands. Research findings may be clouded by the presence of mobile individuals if this variable is not controlled. HRT could be explicitly designed to facilitiate cognitive flexibility.

3. Raters, other than participants, should be included in the evaluation of training outcomes to corroborate the measures obtained here through co-participant and self-report rankings. Evaluations by the group facilitators, trained observers, and back-home colleagues could be included to form an inter-source consensus. The reliability of self ratings by participants could perhaps be increased by having trainees rate themselves against some objective standard (e.g., a videotape modeling certain types of behaviors).

4. Interaction effects of cognitive styles will probably be more evident if the training treatment that is

provided is relatively "pure". A pure structured approach to training (e.g., micro-counseling) might conceivably produce a completely different effect than a pure unstructured approach (e.g., exclusively T-grouping).

5. The length and spacing of the training treatment is a variable that may influence differential outcomes for persons of varying cognitive styles. For example, FDs need stronger "triggers" to stimulate learning. Therefore, they are less likely to be affected by training programs of shorter duration. Differential effects related to the length and spacing of training have been noted by schubert (1972) and Bunker & Knowles (1967).

6. The nature of the outcome variables chosen (i.e., peer-rankings, self-ratings, ratings by observers, etc.) and the measures used (both the format and the content) to assess those variables may be differentially positive for different cognitive styles. Clarity regarding such "bias" is critical.

Endnote Human relations trainers pay lip service to individual defferences, but infrequently modify their training designs to accomodate the perceptual or cognitive styles of participants. Understanding the differences among persons of varying cognitive styles is a first step towards accepting the styles of others. Acceptance can be a difficult task, especially if others' styles are at variance with our own style or incompatible with our predetermined training design. If we can adopt the same behavioral

flexibility that we encourage in our participants, then we will be better able to adapt ourselves and our training designs to the cognitive style needs of trainees.

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Table 1

Correlations Among Peer-Ranked Outcome Measures
& Measures of Perceptual and Interpersonal Discrimination (n=39)

Measure	2	3	4	5	6	7
1. GEFT	.32*	.08	.06	-.02	.05	.01
2. IDT-M Discrimination		.43**	.38*	.15	.25t	.24*
3. Task-Oriented			.84***	.62***	.65***	.78***
4. Maintenance-Oriented				.64***	.69***	.64***
5. Most Satisfied					.91***	.61***
6. Learned the Most						.53***
7. Emotionally Open						

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

Table 2

Self-Reports Correlated With Peer-Ranked Outcome Measures (n=26)

Self-Reports from the Last Available Administration	Peer-Ranked Outcome Measures				
	Task Oriented	Maintenance Oriented	Most Satisfied	Learned The Most	Most Emotionally Open
Feel liked by others	.26	.15	.55**	.35*	.53**
Enjoy being with others	.37*	.27t	.48**	.35*	.60***
Enjoy physical closeness with others	.58***	.46**	.48**	.37*	.62***
Willingness to express anger	.51**	.52**	.42*	.44*	.51**
Attuned to others' unexpressed needs	-.01	.17	-.01	-.10	.01
Considers others' views and feelings	.05	.10	-.06	.04	-.02
Looking for Feedback	.47**	.44*	.28t	.31t	.23
Active and involved participant	.57***	.61***	.64***	.58***	.53**
Primarily a spectator and observer	-.52**	-.30t	-.28t	-.22	-.60***
Performs group maintenance functions	.56***	.51**	.21	.20	.43*
Performs task functions in group	.64***	.63***	.33*	.30	.42*
Satisfaction with the group experience	.19	.03	.58***	.48**	.41*
Learning and understanding as a result of the group experience	.21	.10	.60***	.52**	.32t
Emotional impact of the group experience	.29t	.11	.35*	.38*	.47**

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

Table 3

Correlations of Self-Reports with Ranking
By Others on Dimensions Common to Both Scales
(Aggregated & By T-Group)

	Aggregated	By T-Group		
	(n=26)	A (n=7)	B (n=10)	C (n=9)
Dimensions				
1. Maintenance	.51**	.36	.56*	.62*
2. Task	.64***	.37	.79**	.78**
3. Satisfaction	.58***	.48	.58*	.77*
4. Learning	.52**	.10	.72**	.86**

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

Table 4

Correlations Among Peer-Ranked Outcome Measures and Measures of Perceptual and Interpersonal Discrimination (By T-Group) (n=39)

(a) T-Group A (n=12)

Measure	2	3	4	5	6	7
1. GEFT	.22	.07	-.04	.04	.15	.00
2. IDT-M Discrimination		.79**	.59*	.44	.66*	.48t
3. Task-Oriented			.93***	.73**	.78***	.83***
4. Maintenance-Oriented				.74**	.81***	.78***
5. Most Satisfied					.93***	.76**
6. Learned the Most						.69**
7. Emotionally Open						

(b) T-Group B (n=13)

	2	3	4	5	6	7
1. GEFT	.41	.19	.08	-.03	-.05	.00
2. IDT-M Discrimination		-.18	-.09	.11	-.12	-.15
3. Task-Oriented			.77***	.64**	.81***	.25
4. Maintenance-Oriented				.85***	.85***	.04
5. Most Satisfied					.91***	.24
6. Learned the Most						.24
7. Emotionally Open						

(c) T-Group C (n=14)

	2	3	4	5	6	7
1. GEFT	.31	.18	.20	-.19	-.14	.19
2. IDT-M Discrimination		.59*	.53*	.15	.31	.40t
3. Task-Oriented			.91***	.65**	.67**	.92***
4. Maintenance-Oriented				.48*	.51*	.84***
5. Most Satisfied					.93***	.73**
6. Learned the Most						.70**
7. Emotionally Open						

t $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

Table 5

Means and Standard Deviations of Peer-Ranked Outcome Measures Across the Three T-Groups. Analysis of Variance with Cochrans C Value and Associated Probability

T-Group	Mean	Standard Deviation	Cochrans C Value & Associated Probability
Concern for Task			
A	72	21	C=.43, p=.36
B	81	13	
C	74	20	
Concern for Maintenance			
A	80	21	C=.52, p=.10
B	77	14	
C	78	14	
Satisfaction With Group Experience			
A	73	23	C=.58, p=.03
B	82	15	
C	88	12	
Learning & Understanding From Group Experience			
A	80	15	C=.51, p=.12
B	82	11	
C	90	9	
Most Emotionally Open			
A	75	18	C=.55, p=.06
B	82	8	
c	77	14	

Table 6

Ranges, Means, and Standard Deviations of Peer-Ranked Outcome Measures and the Tests of Perceptual & Interpersonal Discrimination

Measure	Ranges	Mean	Std. Deviation
GEFT	2- 18	10.82	5.37
IDT-M Discrimination	5- 23	13.06	5.03
Task*	29- 99	75.62	17.96
Maintenance*	39-100	78.59	16.29
Satisfaction*	37-100	81.38	17.88
Learning*	55- 98	83.87	12.14
Emotionally Open*	43-98	78.13	13.66

* Details of the scoring scheme used for these dimensions are available from the first author. These scores represent the average (scaled out of 100%) of the ranking of each of the group members.